INSECTS OF MICRONESIA

Diptera: Nycteribiidae

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Only two species of Nycteribiidae, both in the genus *Cyclopodia,* have been collected so far in Micronesia. The western border of the area, as defined in the Introduction to this series, excludes the Philippines, and the southern border runs north of the Moluccas and New Guinea, areas which are among the richest in species of Nycteribiidae. To date, 15 species have been recorded from the Philippines (Theodor, 1962) and about 20 from New Guinea and the neighboring island groups.

The two species mentioned probably represent only a fraction of the species actually to be found in the area. More intensive collecting, particularly of Microchiroptera, probably will increase the number of species.

The United States Office of Naval Research, the Pacific Science Board (National Research Council), the National Science Foundation, and Bernice P. Bishop Museum have made this survey and publication of the results possible. Field research was aided by a contract between the Office of Naval Research, Department of the Navy, and the National Academy of Sciences, NR 160-175.

SUBFAMILY CYCLOPODIINAE

Genus **Cyclopodia** Kolenati 1863

Subgenus **Cyclopodia** s. str.

Sykesii Group

Definitions of genus, subgenus, and groups are given in the revision of the genus *Cyclopodia* (Theodor, 1959).

Cyclopodia albertisii Rondani (fig. 1).

Cyclopodia albertisii Rondani, 1878, Mus. Civ. Stor. Nat. Genova, Ann. 12: 150.—Speiser, 1901, Archiv Naturgesch. **67**: 11.—Scott, 1932, Stylops **1**: 25.—Theodor, 1959, Parasitology **49**: 242.

Nycteribia pteropus Rainbow, 1904, Australian Mus., Rec. **5**: 78.

P. Bishop Museum have made this survey and publication of the results

Cyclopodia pteropus (Rainbow): Ferris, 1924, Am. Mus. Novitates **110**: 5.—Musgrave, 1925, Australian Mus., Rec. **14**: 289.

Length 4-5 mm.; specimens from the Kei Islands are 5-6 mm. Color reddish to blackish brown.

Head: Vertex with 25 to 30 short setae in anterior part and two longer setae at anterior dorsal margin near eyes. About 40 setae in specimens from Kei Is. Anterior narrow part of proboscis about 1.5 times length of thecal bulb.

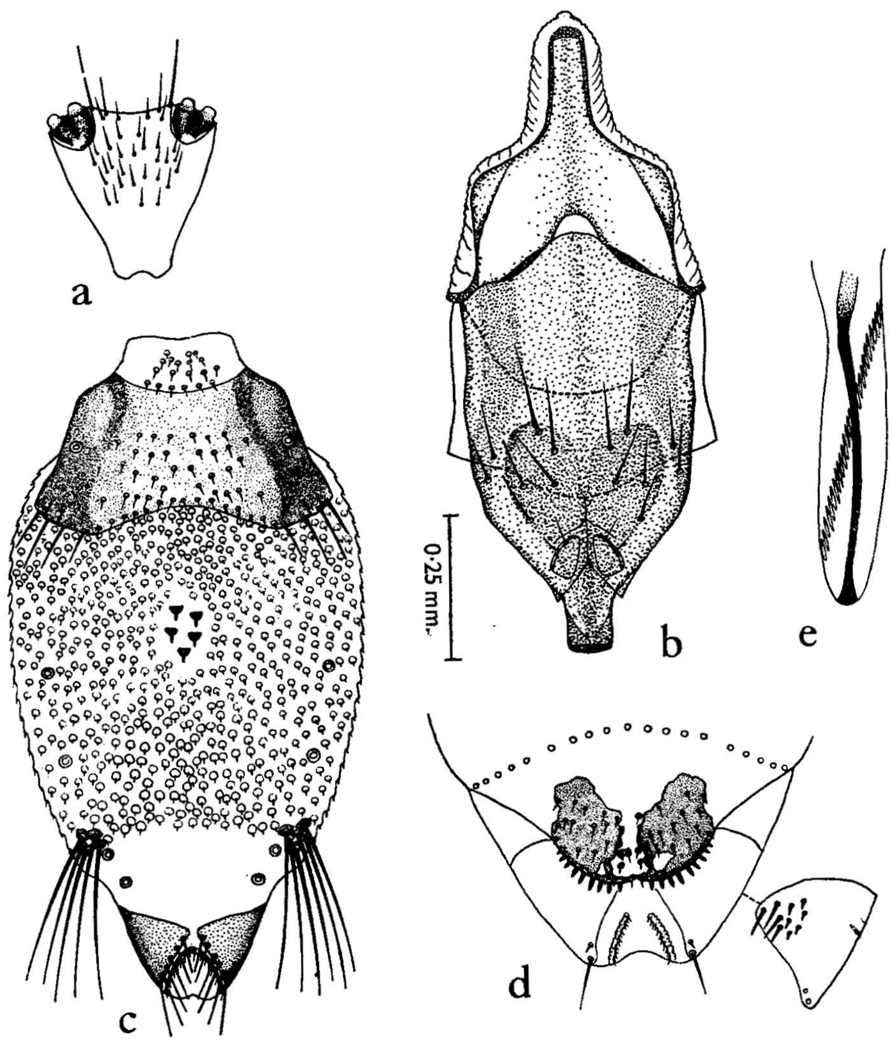


FIGURE 1.—*Cyclopodia albertisii:* **a**, head, dorsal view; **b**, male genitalia, basal arc and phallobase; **c**, female abdomen; **d**, genital plate; **e**, male genitalia. (From Theodor, 1959, Parasitology **49**: 242.)

Thorax and legs as in other species of the sykesii group; two to three notopleural setae.

Male abdomen: Tergite 1 with 12 to 20 minute spines; tergite 2 with five to six spines at posterior lateral corners. Posterior part of surface covered with minute spines. Tergites 3 and 4 with marginal rows of moderately long setae which are broadly interrupted at middle. Surface covered with minute spines. Tergites 5 and 6 much shorter than 4, with marginal rows of longer setae and smaller gaps in the middle. Surface bare. Anal segment long, broadly conical, with short setae in lateral parts of surface and a few longer setae posteriorly. Sternite 1 + 2 with a ctenidium of about 30 spines (38 in the specimens from Kei Is.). Sternites 3 and 4 with uniform marginal rows of moderately long setae and short setae on the surface. Sternite 5 longer, with a row of 8 to 12 short, thick, club-shaped spines at posterior margin.

Genitalia: Claspers straight, tapering gradually to a dark point, about 5 times as long as wide at base. Phallobase with a broad, short, apical hook and about three rows of short setae at base. Parameres broadly elliptical, with two short hairs. Aedeagus rod 0.75-0.8 mm. long, 0.9 mm. in specimens from Kei Is. Field of spines on connective tube dark and dense, as long as aedeagus rod or slightly longer.

Female abdomen (fig. 1, *c*): Tergite 1 with 12 to 20 minute spines; tergite 2 with three to five moderately long setae at posterior lateral corners. Dorsum of abdomen covered with minute spines on sclerotized bases. A group of large spines on bare area at middle of dorsum. Four spines or more in most of specimens from Australia; two spines or less in most of specimens from Palau. This difference is statistically significant as shown in the following table.

Number of spines on dorsum

	0	1	2	3	4	5	6	7	
Palau	2	3	21	10	3	2	1	1	Mean: 2.6 ± 0.21 (S.E.)
Australia	—	1	1	5	12	3	2	2	Mean: 4.1 ± 0.26 (S.E.)

Two groups of long setae at posterior lateral corners of dorsum between spiracles 5 and 6. These groups consist of six to seven setae in some specimens and of only two to three in others. In a few specimens from Palau Is. there are two to four long setae in the center of the triangle formed by the anterior group of spines and the two posterior groups of long setae. Sternite 1 + 2 with a ctenidium of 36 spines. Ventral surface of abdomen covered with spines which are longer anteriorly at sides and posteriorly at middle. There are narrow bare spaces in distended specimens between sternites 4 and 5 and sternites 5 and 6. A row of about 10 long setae in posterior row on sternite 6 opposite sternite 7 (genital plate). This is square, consisting of two roughly triangular lateral sclerites which are covered with short hairs. The sclerites are separated by a membranous area which is wider anteriorly and has two lateral branches posteriorly. A row of about eight short spines at rounded posterior margin in each half.

DISTRIBUTION: Moluccas (type locality), New Guinea, Kei and Salawati Islands, Australia, Caroline Is.

PALAU: PELELIU: Eastern Peninsula, 25 males, 20 females, Aug. 1945; male, Nov. 1945; 15 males and females, Oct. 1945; three males, six females, Dec. 1945; all from *Pteropus pelewensis,* Strong. KOROR: Eight males, three females, Dec. 1945, Marshall. NGERGOI (Garakayo): Three males, four females, Oct. 1945, from *Pteropus pelewensis,* Strong. BABELTHUAP (Babeldaob): Female, Emertao, Mar. 1938, H. Hiraishi (Micronesian coll., Kyushu Univ.).

HOSTS: From *Pteropus gouldi, P. conspicillatus, P. poliocephalus.* Caroline Is., from *P. pelewensis.*

5 and 6. These groups consist of six to seven setae in some specimens and of only two

The material from the Palau Islands may eventually have to be considered as a subspecies, but no material from Moluccas, the type locality, is available and too little is known at present about the distribution of the species and its variability.

Cyclopodia ponapensis Theodor (fig. 2).
Cyclopodia ponapensis Theodor, 1959, Parasitology **49**: 242.

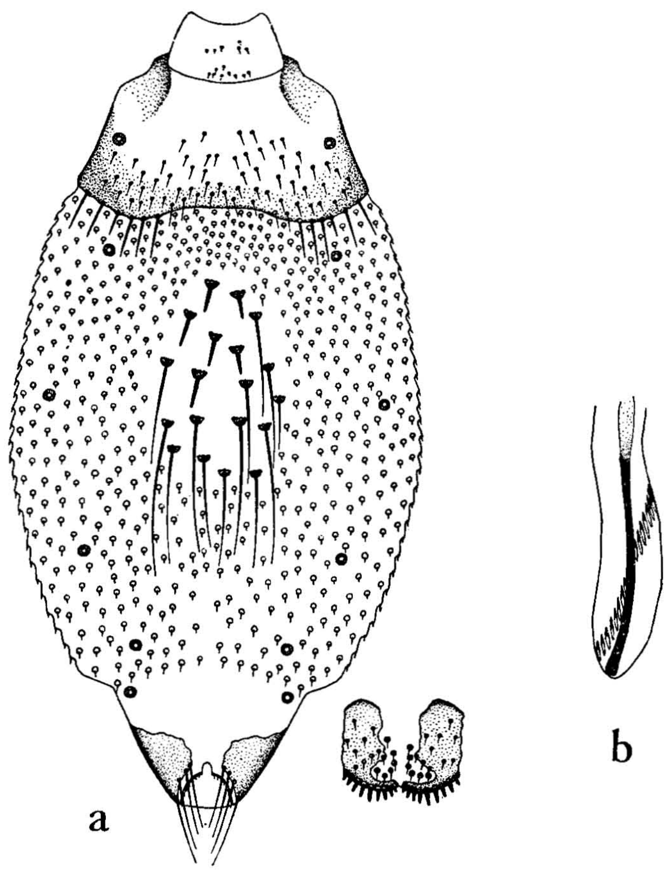


FIGURE 2.—*Cyclopodia ponapensis:* **a**, female abdomen, dorsal view, and genital plate; **b**, male genitalia. (From Theodor, 1959, Parasitology **49**: 242.)

Length 4.5 mm. Color dark brown.

Head: Two long and several short setae at anterior dorsal margin. A group of 18 to 25 short hairs on anterior part of vertex. Eyes large. Anterior narrow part of proboscis longer than thecal bulb by one-third.

Thorax as in *C. albertisii*; one to two notopleural setae.

Male abdomen: About 16 minute spines on tergite 1, posterior spines longer than anterior ones. About eight rather short spines at posterior lateral corners of tergite 2.

Abdominal ctenidium with about 35 spines. Posterior margin of sternite 5 with a row of about eight short, thick, club-shaped spines at posterior margin.

Genitalia: Phallobase with broad apical hook and two groups of five to six setae on base. Claspers as in *C. albertisii,* about four times as long as wide at base. Aedeagus rod 0.7 mm. long. Field of spines on connective tube slightly shorter than aedeagus rod.

Female abdomen: Tergite 2 with six to eight short setae at posterior lateral corners. Dorsum covered with short spines. At middle of dorsum an oblong group consisting of five to six very long and strong spines anteriorly and eight to 10 long setae posteriorly. On ventral side, posterior margin of sternite 5 is marked by longer setae with a bare space behind them. About six long setae in marginal row of sternite 6. Sternite 7 (genital plate) rectangular, with lateral sclerites separated by a membranous stripe which widens anteriorly and posteriorly. About 10 short spines at posterior margin in each half.

DISTRIBUTION: Caroline Is.

PONAPE: Colonia, three males, three females, Feb. 1948, from *Pteropus molossinus,* Dybas, Thomas, Hurlbut (type series, Chicago Nat. Hist. Museum).